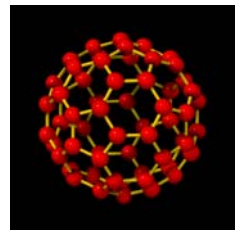
Acquisition of a Near-Millimeter / Far-Infrared Fourier Transform Polarizing Spectrometer for Characterization of Novel Materials



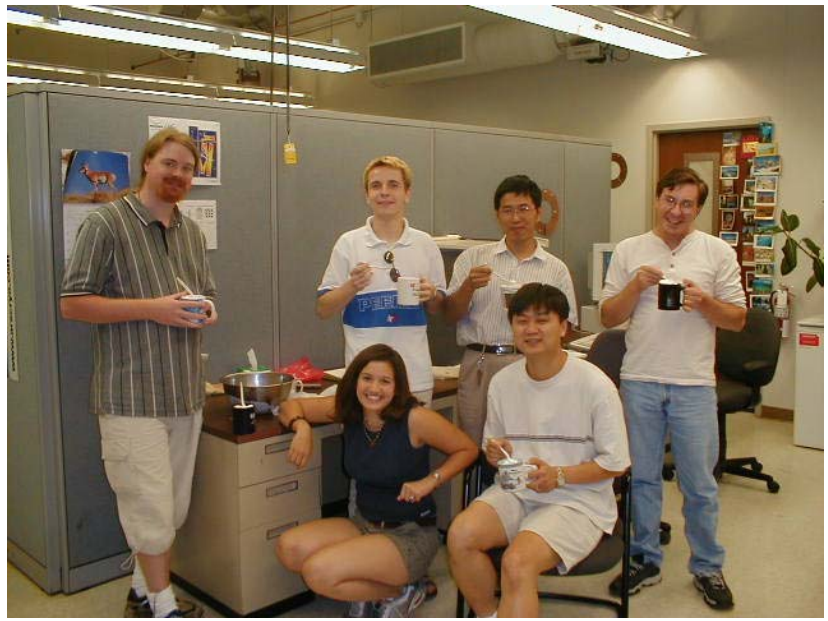
Musfeldt Research Group, University of Tennessee

- **Our Target: a low - energy (2 - 100 cm^{-1}) polarizing spectrometer from ScienceTech.**
- **Extensive modifications will be made to the instrument, providing interested graduate students with important equipment-building experience.**
- **A 1.5 K cryostat was rebuilt, a turbo - pump station was assembled from components, and a 1.8 K bolometer has been acquired to support these spectroscopies.**
- **The instrumentation will be used for the spectroscopic study of novel electronic and magnetic materials. Examples include single molecule magnets and fullerenes, where low - energy excitations are important.**

Education and Human Development

Musfeldt Group, University of Tennessee

- Broad, interdisciplinary training of students in materials spectroscopy
- Close interaction and collaboration with materials design and theory groups
- 14 undergraduates and 2 high school students over 7 year period.
- ~50% female participation, with one student an African American female.



- The SPS-200 near-millimeter / far-infrared Fourier transform polarizing spectrometer from Science Tech will provide Group members with important equipment – building opportunities at every level of seniority and interest. Both high school students and postdoctoral researchers have been involved.